
INTRODUCTION

INTRODUCTION

PURPOSE AND GOALS OF THE PROJECT

The purpose of the cultural resources documentation detailed in this report is to provide relevant data for the Blue Ball Master Plan. The planning team consisted of a variety of consultants operating under the direction of a Scope of Work developed by Wallace, Roberts & Todd dated September 9, 1999. This report presents the results of a cultural resources documentation study for the project area, and includes a comprehensive listing of prior relevant cultural resources reports and other documentation (Appendix). The project area setting is presented, followed by sections detailing the prehistoric and historic cultural development of the area. A synopsis of previous cultural resources surveys is presented, and each cultural resource currently known for the Blue Ball Master Plan project area is summarized. Recommendations regarding future project area needs are followed by references and other supporting documentation.

PROJECT AREA SETTING

The project area, located north of Wilmington in New Castle County, is transected by several streams, including Alapocas Run to the west, which drains into the Brandywine, and Matsons Run to the east, which drains into Shellpot Creek. The project area is partially defined by the road system it encompasses (Figure 1). South and east of the Blue Ball intersection are Parcels A (also known as the Weldin Road parcel) and B (also known as the Rock Manor Golf Course parcel). To the northwest of the Blue Ball intersection is Parcel C (termed herein the AstraZeneca Triangle Property), and to the west and south of the Blue Ball intersection is Parcel D (also known as the Alapocas Run parcel), and Parcel E (the Rockland Road parcel). Currently, the majority of the parcels (with the exception of parcel C) are cleared land, either under cultivation or manicured lawn/golf course. Cultural resource data for Parcels C and E were compiled under separate Scopes of Work (Catts and Kellogg 2000; Catts and Benedict 2000), but the results of those studies are incorporated in the present report. It should be noted that detailed investigations of Parcel B were not called for under the present Scope of Work, and the parcel was not further considered.

The Blue Ball Master Plan project area lies in the Piedmont physiographic province of Delaware—a transition zone between the Appalachian province to the northwest and the Coastal Plain province to the south (Figure 2). A narrow strip of the Coastal Plain province extends along the Delaware River east of the project area. The Piedmont province is an eroded and dissected area of uplands developed on metamorphic crystalline bedrock (Costa and Cleaves 1984). The Piedmont rocks extend to the east under a wedge of sediments that form the coastal plain and continental shelf (Klitgord et al. 1988; Maguire et al. 1999). In the vicinity of the project area, the bedrock is comprised of three groups of high-grade metamorphic rocks: 1) metamorphosed sedimentary rocks of the Wissahickon group; 2) heterogeneous gneiss and intrusive igneous rocks of the

Wilmington complex; and 3) basement gneiss of the craton and its metasedimentary cover, including quartzites and marbles (Bosbyshell et al. 1999:42-44). The Blue Ball Master Plan project area itself is underlain by Precambrian rocks of the Wilmington Complex (predominantly gneiss) with a patchy veneer of Tertiary conglomerates of the Bryn Mawr formation (Woodruff and Thompson 1975). Both gneiss and conglomerate rocks crop out at the surface in the project area. The bedrock controls the topography of the project area and slopes and other topographic features reflect the underlying geology.

Streams and drainages are deeply incised into the Piedmont and Coastal Plain provinces. The major streams (the Brandywine River and Shellpot Creek) are graded to lower stands of the fluctuating sea levels that occurred during the Pleistocene ice ages (Costa and Cleaves 1984:70). Drainage is to the south and east towards the Delaware River. The pattern of the drainage network is dependent on jointing and foliation of the bedrock. The topography of the project area is generally sloping towards the south (Figures 2 and 3), with steep slopes bordering small drainages, such as Alapocas Run.

Ground-water in the Piedmont province is controlled by a two-part system: the regolith, and the underlying fractured crystalline bedrock (Heath 1989). Storage of ground-water depends on the character and thickness of the regolith—the unconsolidated rock, sediment, and soil that forms the surface of the earth. Surface drainage is related to fracture patterns in the underlying bedrock and the efficiency of the hydraulic connection between the base of the regolith and the underlying bedrock (Heath 1989:2-6). Thus, stream locations follow weaknesses in the bedrock where there is a transfer of ground-water between fractures in the bedrock and the overlying regolith.

Soils of the Blue Ball Master Plan area fall into either the Neshaminy-Aldino-Watchung or Neshaminy-Talleyville-Urban associations (Matthews and Lavoie 1970). Neshaminy soils are level to steep, deep, well-drained and can be stony (Matthews and Lavoie 1970:3). Aldino soils are level to gently sloping, moderately well-drained with a fragipan horizon in the subsoil. In contrast with the Aldino soils, Watchung soils are poorly-drained with clayey subsoil and can be stony; they occur chiefly on flats and hollows in the Piedmont (Matthews and Lavoie 1970:38-39). Bedrock is generally encountered within 10 feet from the surface of these soils (Matthews and Lavoie 1970:3-4). Talleyville soils are described as very deep, well-drained soils developed on two distinct kinds of material. The upper material is silty, similar to the Matapeake soil series, and probably represents a late Pleistocene loess—wind-blown silt (Carey et al. 1976; Darmody and Foss 1982; Foss et al. 1978). The lower material is derived from weathering of the local bedrock into a sandy clay (Matthews and Lavoie 1970:37). Sloping Talleyville soils are subject to erosion and 5 to 10 percent slopes may have lost much of their original surfaces (Matthews and Lavoie 1970:37). The Urban soils are man made land which has been cut, graded, or filled (Matthews and Lavoie 1970:5). Talleyville soils are the most common in the project area (Figure 4), while developed areas are classified under the

Neshaminy-Talleyville-Urban complex (NtB on Figure 4). Watchung and Aldino soils are associated mainly with the drainages.

The “Triangle Woods” occupying the northern half of Parcel C “is a fine, well-managed, mature oak forest” (Fleming 1978:102-103). Black and white oak dominate the area because tulip poplar trees were logged. Red maple and sweet gum are also present. On the Weldin Road Parcel (Parcel A), osage orange trees mark old fence lines and farm lanes. The majority of the areas is still agricultural, with plowed fields on Parcels A, C, and D. Parcel E (Rockland Road Parcel) contains areas of fill, fallow field, and some wooded areas along drainages.

In summary, the Blue Ball Master Plan project area occupies higher ground and slopes above short drainages of the Piedmont physiographic province. Drainage and topography are controlled by bedrock that is relatively close to the surface. Surficial deposits are dominated by silts probably deposited by wind during, and at the end of, the last continental glaciation. Soil drainage is somewhat variable across the project area because either sand or clay underlie the surficial silts. The highest ground of the project area may be eroded as silts are lacking and sand is exposed on the surface along with fragments of the conglomerate bedrock in some areas.